

## **AMENDMENTS TO THE CLAIMS**

Cancel Claims 2 and 3 without prejudice. Please accept amended Claims 1, 4-10, 18 and 20 as follows:

1. (Currently Amended) A method for generating one or more computer-executable procedures, comprising the steps of:

recording at least one trace of at least one instance of a procedure, wherein the at least one trace comprises a plurality of steps;

simultaneously performing an alignment and generalization of the plurality of steps, wherein the alignment identifies and aligns steps that are equivalent once generalized, wherein simultaneously performing the alignment and generalization of the at least one trace further comprises computing a set of possible alignments and generalizations of the at least one trace, and selecting an alignment and a generalization from the set of possible alignments and generalizations according to an alignment-generalization functional that determines a rate at which the steps of the procedure are correctly predicted for the set possible alignments and generalizations; and

generating the one or more computer-executable procedures consistent with the a selected alignment and generalization.

2-3. (Canceled)

4. (Currently Amended) The method of claim 3 1, wherein selecting the alignment and the generalization from the all possible alignments and generalizations that maximizes the alignment functional and the generalization the alignment-generalization functional comprises selecting the

~~alignment and the generalization from the all possible alignments and generalizations that maximizes the selects an alignment functional equal to a sum of steps having a greatest number of correctly predicted steps by according to a procedure model.~~

5. (Currently Amended) The method of claim 3 1, wherein ~~selecting the alignment and the generalization from the all possible alignments and generalizations that maximizes the alignment functional and the generalization the alignment-generalization functional comprises selecting the alignment and the generalization from the all possible alignments and generalizations that maximizes the selects a generalization functional that is equal to a sum of steps having a greatest number of correctly generalized steps by according to a procedure model.~~

6. (Currently Amended) The method of claim 2 1, wherein ~~the alignment-generalization functional is selecting the alignment and the generalization from the all possible alignments and generalizations that maximizes the alignment-generalization functional comprises selecting the alignment and the generalization from the all possible alignments and generalizations that maximizes a monotonically increasing function of an alignment functional and a generalization functional.~~

7. (Previously Presented) The method of claim 6, wherein ~~selecting the alignment and the generalization from the all possible alignments and generalizations that maximizes a the monotonically increasing function of the alignment functional and the generalization functional comprises selecting selects the alignment and the generalization from the all set of possible alignments and generalizations that maximizes a linearly increasing function of the alignment~~

functional and the generalization functional.

8. (Currently Amended) The method of claim 1, wherein ~~simultaneously performing an alignment and generalization of the at least one trace further comprises selecting an alignment and generalization by maximizing an the alignment-generalization functional is maximized using an optimization technique.~~

9. (Currently Amended) The method of claim 8, wherein ~~selecting an alignment and generalization by maximizing an alignment-generalization functional using an optimization technique comprises selecting an alignment by maximizing the alignment-generalization functional using an iterative further comprising applying the optimization technique iteratively.~~

10. (Currently Amended) The method of claim 9, wherein ~~selecting an alignment by maximizing the alignment-generalization functional using an iterative the optimization technique comprises selecting an alignment by maximizing the alignment-generalization functional using is a gradient-descent technique.~~

11. (Original) The method of claim 1, wherein simultaneously performing an alignment and generalization of the at least one trace further comprises the steps of:

- computing an initial alignment and generalization of the at least one trace;
- generating a procedure model of the initial alignment; and
- computing a best alignment and generalization of the procedure model.

12. (Original) The method of claim 11, further comprising the step of:

repeating the steps of determining the initial alignment, generating the procedure model, and determining the best alignment until a local optimum is detected.

13. (Original) The method of claim 11, wherein generating a procedure model of the initial alignment comprises generating a Hidden Markov Model of the initial alignment.

14. (Original) The method of claim 13, wherein generating a Hidden Markov Model of the initial alignment comprises generating an Input/Output Hidden Markov Model of the initial alignment.

15. (Original) The method of claim 1, wherein simultaneously performing an alignment and generalization of the at least one trace further comprises the steps of:

determining an initial alignment and generalization of the at least one trace; generating a transition model and an action model of the initial alignment and generalization; and

determining a best alignment of the transition model and the action model.

16. (Original) The method of claim 15, wherein further comprising the step of:

repeating the steps of determining the initial alignment, generating the transition model and the action model, and determining the best alignment until a convergence is detected.

17. (Original) The method of claim 15, wherein generating a transition model and an action model of the initial alignment and generalization comprises generating a transition model for at

least one node and an action model for the at least one node.

18. (Currently Amended) A machine-readable medium having instructions stored thereon for execution by a processor to perform a method for generating one or more computer-executable procedures, comprising the steps of:

recording at least one trace of at least one instance of a procedure, wherein the at least one trace comprises a plurality of steps;

simultaneously performing an alignment and generalization of the plurality of steps, wherein the alignment identifies and aligns steps that are equivalent once generalized, wherein simultaneously performing the alignment and generalization of the at least one trace further comprises computing a set of possible alignments and generalizations of the at least one trace, and selecting an alignment and a generalization from the set of possible alignments and generalizations according to an alignment-generalization functional that determines a rate at which the steps of the procedure are correctly predicted for the set possible alignments and generalizations; and

generating the one or more computer-executable procedures consistent with the a selected alignment and generalization.

19. (Cancelled)

20. (Currently Amended) A method for generating one or more computer-executable procedures, comprising the steps of:

recording a state of a computer system;

recording at least one trace of user actions that change the state of the computer system;

performing an alignment of a plurality of user actions of the at least one trace to at least a second trace to determine a plurality of aligned user actions, wherein the alignment identifies and aligns steps that are equivalent once generalized;

performing a generalization of the plurality of aligned user actions to determine a plurality of generalized and aligned user actions;

selecting a generalized and aligned user action to represent a respective user action of the at least one trace using an alignment-generalization functional that determines a rate at which a selected generalized and aligned user action correctly predicts user actions of the trace to represent a respective user action of the at least one trace; and

generating the one or more computer-executable procedures executable by the computer system consistent with a the selected generalized and aligned user action.